

With 11 plates

NOTES ON TYPHOUS FEVER,

AND ITS

TREATMENT IN THE ABERDEEN INFIRMARY
DURING THE YEARS 1838-39 AND 40.

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NOTES ON TYPHOUS FEVER.

A desire to economise, as far as possible, both my own time and that of my clerks, during the prevalence of typhous fever for the last three years, induced me to depart from the ordinary mode of reporting the cases, unless in those of more than ordinary interest, and to substitute for the usual case-book one admitting of short entries in a tabular form. From it, and from the prescription-books for my Fever Ward, I am enabled to make up the following table of the cases treated by me within the above period. One part of the table has reference to infection as the cause of fever, and to the state of the skin in regard to the exantheme; the other has reference to the mode of treatment. The attempt to bring the treatment within the tabular form is not common; and some may be inclined to doubt its applicability as a rule to guide us; but, in my opinion, general results may as much be relied on here as in any other case where the numerical system is adopted.

1838.	Admitted.	Infection.	Exantheme.	Dead.	No. Bled.	Leeches used.	Blisters used.	Ounces Wine.	Bottles Porter.
Mar.	23			5					
April,	25	10	9	4	7	46	10	13	9
May,	25	9	15	3	5	6	22	18	
June,	30	11	14	5	3		23	13	
July,	16	8	8	3	5	26	18	42	3
Aug.	14	1	5	2		40	8	18	
Sept.	15	1		3	5	44	13	22	1
Oct.	9		1		6	66	13	74	4
Nov.	12	3	3		3	60	6		
Dec.	20	2	4	1	3	24	8	12	
	189	45	59	26	37	310	121	212	17
1839.									
Jan.	24	7	10	5	9	80	33	64	
Feb.	17	9	13	5	2	128	26	118	1
Mar.	14	2	2	1	5	86	14	46	3
April,	12	2	4	2	9	148	11	30	
May,	13	1	3	1	6	42	11	102	
June,	9	1	2		8	64	17	46	
July,	19	2	3	2	4	74	19		3
Aug.	23	2	2	2	1	44	19	128	
Sept.	23	1	5		3	58	12	62	7
Oct.	35	4	2		2	62	24	24	
Nov.	42	17	25	6	6	50	26	4	4
Dec.	55	36	25	5		12	21	72	1
	286	84	96	29	55	848	233	396	19

1840.	Admit- ted.	Infec- tion.	Exan- thema.	Dead.	No. Bled.	Leeches used.	Blisters used.	Ounces Wine.	Bottles Porter.
1840.									
Jan.	45	24	35	4		4	31	71	
Feb.	43	20	22	4		18	23	17	
Mar.	56	34	42	9		36	44	28	
April,	55	29	28	5		8	37	78	3
May,	00	26	23	5		10	33	32	9
June,	52	26	12	6		10	33	128	9
July,	44	24	22	3		14	35	54	19
Aug.	40	26	17	5	2	36	22	123	
Sept.	32	10	14	4		12	25	74	
Oct.	41	24	26	2	1	8	19	58	
Nov.	41	26	19	3	1	12	31	116	
Dec.	35	16	18	3		44	22	170	
	534	285	278	53	4	212	355	949	40

I. It will be seen from these tables, that the cases arising from infection, that is to say, brought from houses or families where fever existed, were in the first year, 23.80 per cent.; in the second, 29.22 per cent.; and in the third, 53.37 per cent.

I am certain, however, that these are considerably below the real numbers where the disease was produced from this cause; for I have long observed a disposition on the part of patients to conceal or deny their having been exposed to infection.

II. The cases admitted with the exanthema, or the eruption of typhus, in the first year, were 31.21 per cent.; in the second, 33.54 per cent.; and in the third, 52.05 per cent. So that the proportion is here nearly the same as under the former head. By another table, which was kept during the year 1840, the per centage of those admitted from infection, and having also the exanthema was 36.39, and of those having exanthema, but where they had not been, to their knowledge, exposed to infection, it was 15.66.

I am perfectly satisfied that this fever, call it by what name we will, is truly an exanthematous fever, though not observing the same periodicity or regularity in the cutaneous affection, as those longer known to us as exanthematous fevers. I attempted for some time to keep tables of the form, colour, date of appearance, and of disappearance of the exanthema; but the results were so exceedingly variable, and the characters of the exanthema, except in so far as regarded colour, had so little apparent connection with the type of the fever, and so little influenced the practice, that I gave them up. A table which was kept in 1840 of the cases from infection, but not attended with exanthema, gives us 17.60 per cent.; but in almost every one of the cases where the fever was caught from those having the exanthema, the cutaneous eruption was present. Thus of the students, fever nurses, and domestic servants in the

hospital, who took the fever, every one had the eruptive form. In many cases it is confined to one part of the body, and the spots may be few in number and not very distinct unless to a practised eye. That the numbers are not higher in this column of the table arises from this,—that entries were only made of those cases where it was general over the body. I need not now-a-days say it is different from petechiæ, and that the two sometimes exist together in the same case. In those cases that were to be fatal, the exanthema often became like purpura, the spots being most numerous on the lower extremities; but in size and shades of colour always distinct from true petechiæ where the latter were present.

I have never known a second attack of exanthematous typhus in the same individual. It happened in several instances, that persons sent into the fever wards with inflammatory diseases, such as bronchitis, influenza, erysipelas, &c. were seized with exanthematous typhus, before they could be got out, or if sent out, were returned on us after a variable time with that disease.

III. The deaths in the first ten months were 1 in 7.26, or 12.68 per cent.; in the second year, they were 1 in 9.51 or 10.13 per cent.; and in the third, 1 in 10.07 or 9.92 per cent., or close upon 10 per cent. This mortality, however, it must be observed, includes all deaths in my fever wards, and it embraces, therefore, those admitted moribund, as well as some cases not fever. Taking the whole deaths against the whole admissions for the three years, the proportion is 1 in 9.34, or, deducting from both admissions and deaths, those admitted moribund, of which the number was 10, and in which death took place within twenty-four hours from admission, and deducting in the same way 6 cases where death was not connected with fever, it is 1 in 10.80.

IV. If we look again to the mode of treatment adopted, we find that one patient in 5 was bled or cupped in the first year; 1 in 5 the second; and 1 in 133 the third year. The average quantity of blood abstracted was ten ounces.

V. Taking the number of leeches applied, and allowing the loss of blood from each to be half an ounce (for draining from leech-bites was soon found to be followed by serious consequences, and, therefore, carefully guarded against), allowing also the average loss of blood in each case where leeches were used, to be ten ounces, it will follow, on adding together the bleedings generally and locally, that every 3.65 patient was bled to ten ounces in the first year; every 2.46 in the second; and every 38.14 in the third.

It must be here remarked, however, that some cases became inmates of the fever ward (and when once there were not removed) with acute inflammatory diseases, such as pneumonia, hydrocephalus, rheumatism, and variola; and as the above are the whole

bleedings performed, and leeches used in these wards, a considerable deduction ought to be made from the estimated loss of blood in fever on account of these cases. No line of treatment was found more generally injurious than loss of blood from the arm, and even in cases of local congestion it was found that the loss of blood locally was not well borne. The bleeding from leech-bites in some cases was with difficulty stopped, and even sometimes broke out again. I am certain of having lost one patient from this cause.

VI. A blister was applied to every 1.56 case in the first year; to every 1.22 case in the second; and to every 1.50 case in the third year. They were extensively used to the nape of the neck or forehead in delirium, but were found most successful in the affections of the lungs, and stomach and bowels, attending fever.

VII. Each patient had on the average 1.12 oz. of wine in the first year; 2.08 in the second; and 1.77 in the third. The total quantity for the whole period was 1757 ounces, or about $1\frac{3}{4}$ ounces to each patient.

It will be seen that, during the year when the mortality was greatest, the quantity of wine used was the least, and that in the year when the bleedings were most numerous, the quantity of wine required was the highest. It must be here remarked, however, that much of the wine was given in cases of tedious convalescence; thus one case is recorded where the quantity used in this way was above nine bottles. The quantity of porter used was unimportant. A weak or medium beer, rendered very bitter by a large quantity of hops, was used to the extent of a bottle a-day in many cases, and being brisk and fresh, was found more grateful than porter. Ginger-beer was allowed to the same extent daily where the patient asked for it. Not two bottles of ardent spirits were used in the year; and the whole quantity of wine administered in the two years and ten months was (allowing twenty-four ounces to the quart bottle) six dozen, one bottle, and five ounces. I need hardly say that there was no limitation on the part of the directors of the infirmary as to wine, spirits, or porter, and the quantities prescribed were solely from the conviction that moderate quantities only were required in this epidemic. The state of the pulse and the colour of the exanthema afforded the chief indications in regard to the use of wine. The condition of the tongue I soon ceased to consider as any guide, and delirium was oftener an inducement than a bar to the exhibition of this cordial stimulant. I know nothing peculiar to this locality or the character of its population which should render the type of epidemic fever milder in it than in any other densely crowded manufacturing town; and the table, I trust, will prove that the mortality is as small as where this expensive remedy wine is given to a very great extent. I call in question no man's practice; but economy in charitable funds

ought unquestionably to be exercised when compatible with the recovery of the objects that are their care. Had I been less free in abstracting blood, and less chary in the use of wine during the first year or ten months, I believe my mortality would not have been so high ; but I equally believe that a more liberal use of wine would not have diminished the mortality of the third year.

Had I added to the foregoing table a column for the blue pills used, of which the average to each patient did not, I think, exceed three ; another column for the tea-spoonful doses of castor oil ; and a third for the doses of the *Pulvis Cretæ Compositus c. Opio*, often required on account of diarrhœa, and which in the dose of eight grains, repeated sometimes three or four times, at intervals of three or four hours, it almost never failed to arrest, my list of medicines would have been about exhausted. All saline mixtures so often ordered in private practice for the sake of appearing to do something, I soon discovered to bring on diarrhœa or irritate the stomach. The effervescing draughts were sometimes used where there was vomiting or hiccup (the latter a very fatal symptom when present in a continued form), but were not of equal benefit to blisters over the epigastrium. With all submission to the experience of others, I must state that the vegetable decoctions and infusions sometimes recommended in this disease always did harm, and the quinine generally dried the tongue, and, consequently, was very seldom used.

VIII. In addition to that pain in the legs and inability, in consequence of walking, and in addition to the usual sloughs on sacrum and nates, the sequelæ were abscesses over the parotid gland, or in the ear, (in both cases, the pus healthy) ; abscesses at the lower third of the leg, generally of both, containing a bloody sanious pus ; anasarca swellings of the lower extremities, and, in some, a condition of a limb resembling *phlegmasia dolens*. In some cases, especially those where the catheter required to be used, pus was afterwards found in the urine, and the recovery was protracted. A minute furfuraceous desquamation of the cuticle, most easily discovered on the hands, took place in many of the cases where the eruption was abundant, and in large bright spots.

IX. The cause of death, or rather the organ chiefly affected at the time of death, was thus noted in 99 cases :

Head and			Stomach and			Erysipelas.	Moribund.
Head.	bowels.	Lungs.	bowels.				
29	- 6	- 18	- 21	-	15	-	10

Amongst those entered as affections of the head, one was a case of hydrocephalus, and another was found at the necropsy to be a tumour in the cerebellum. Of those entered as affections of the lungs, three were cases of pure pneumonia. Three children in one

family, who died of typhus, were found to have a collection of pus, or empyema of one side of the chest. I believe, that in the hospital, or at their own house, five, if not six, children, the oldest not being sixteen, of this family were carried off by fever. They had come from the Highlands a short time previous, and were in extreme want. Of those entered as affections of the bowels, four had melæna stools, or passed blood from the bowels previous to death. Of the deaths from erysipelas, five arose from that disease attacking the glottis, or extending inwards to it from the face; and two died from being worn out by numerous superficial abscesses which followed the erysipelas in various parts of the body. Thirteen of the deaths are stated to have taken place during convulsion, and in most of these, the entry in regard to "habits" is "very intemperate." Some of the cases put down as affections of the head would, but for the abundant exantheme, have been put down as *delirium tremens*. They were drunken dissipated characters. Some of them walked to the hospital on their own feet, and, notwithstanding the free use of wine after admission, and, in some cases, opiates, were cut off in two or three days at furthest.

Besides the above, two females died of mortification of the vagina, extending upwards to the uterus; one of vibices and purpura on the second day, after having had an abortion; one of purpura with severe cutaneous hemorrhage; and one of sphacelation following the application of a blister.

The circumstance of mortification of the genitals in this fever is deserving of notice, as it occurred in several cases besides these two in which it proved fatal. I believe my colleague had one death from the same cause. In the first case, I attributed it to the girl having, perhaps, had gonorrhœa, as she was a suspicious character; but the next case I met with was in a young girl, where no such cause could have existed. The passing of the acrid urine during the period of insensibility might have been sufficient cause, but if so, why was it not much more frequent? Dr Ferriar, in his *Medical Histories*, Vol. i. p. 133, narrating some points connected with a severe epidemic fever in 1789-90, says, "In the course of the last twelve months, I have met with several instances of putrid fever in young girls, accompanied with broad maculæ on the body and limbs, and a gangrenous state of the *labia pudendi*. The parts were greatly tumefied, and extremely painful. It was a very fatal complaint."

X. The average residence for all the fever cases was 18.67 days. The exact day from which convalescence showed itself was not attempted to be noted; but of the exanthematous fever, the average period of time, from the day which the patient gave

as that on which he was confined to bed, to that on which he was dismissed cured from the hospital, was, in 100 cases of each sex, taken consecutively, for

Males,	-	26.89 days.
Females,	-	32.83
Both,	-	29.86

Or, grouping them into periods, the dismissals took place in the following order from the day of the attack :

	Males.	Females.
Betwixt the 12th and 20th day,	16	11
20th and 30th day,	50	29
30th and 40th day,	29	40
40th and 50th day,	5	16
50th and 60th day,	.	4
	<hr/> 100	<hr/> 100

It would appear from this table, that exanthematous fever lasted longer in females than in males, or that the period of recovery was more prolonged in the former. I am inclined to believe that such is the fact, but am at the same time well aware that males are impatient to quit the hospital, whilst females, on the other hand, are equally disposed to remain. This in part may account for the discrepancy in the averages ; I say in part, for the demand for admissions was, at the time the above selection was made, (1840,) too pressing to allow us to keep patients a day longer than they could walk out.

XI. The annual report of the Aberdeen Infirmary for 1840 contains the following table of the fever cases admitted for the year into my colleague, Dr Dyce's wards, as well as my own.

Table of fevers admitted during the year 1840, with the ages, sex, the moribund, or those who died within twenty-four hours from admission, the deaths, and the rate of mortality.

MALES.						
Age.	Admit- ted.	Mori- bund.	Total treated.	Dead.	Propotion.	Per Cent.
Under 5	9	-	9	1	1 in 9	
5 to 10	50	-	50	1	1 in 50	
10 to 20	159	1	158	7	1 in 22.58	
20 to 30	110	1	109	15	1 in 7.26	
30 to 40	67	2	65	12	1 in 5.41	
40 to 50	59	4	55	17	1 in 3.23	
50 to 60	14	2	12	6	1 in 2	
60 to 70	8	1	7	-	...	
70 to 80	3	1	2	2	...	
80 and upwards	-	-	-	-	...	
Total	<hr/> 479	<hr/> 12	<hr/> 467	<hr/> 61	<hr/> 1 in 7.65	<hr/> 13.06

FEMALES.

Age.	Admit- ted.	Mori- bund.	Total treated.	Dead.	Proportion.	Per Cent.
Under 5 .	9	-	9	1	1 in 9	
5 to 10 .	41	-	41	2	1 in 20.5	
10 to 20 .	233	1	233	5	1 in 46.5	
20 to 30 .	174	1	173	12	1 in 14.41	
30 to 40 .	90	4	86	7	1 in 12.28	
40 to 50 .	69	2	67	4	1 in 16.75	
50 to 60 .	20	-	20	4	1 in 5	
60 to 70 .	17	-	17	4	1 in 4.25	
70 to 80 .	3	1	2	-	...	
80 and upwards	1	-	1	-	...	
Total .	657	9	649	39	1 in 16.64	6.05

This table exhibits to us a corroboration of several facts recorded in the valuable tables of Dr Cowan of Glasgow and other medical statisticians. The females admitted exceed the males in the proportion of 1.37 to 1 ; or the females constitute 58.87 per cent. of the whole admissions, the males only 42.92. In both sexes, the period of life most liable to fever is from 10 to 30 years of age. The cases at this age are more than all the others united, or constitute 59.50 per cent of the total admissions.

The deaths in the males treated are more than double those in the females, being 13.06 per cent. in the one, and 6.05 in the other. The deaths betwixt the ages of 10 and 30 of both sexes are 5.82 per cent. whilst, of those above this period, they are 17.36 per cent. the mortality increasing, in the males especially, with the age.

It appears that in most hospitals more males are brought in moribund than females. This is in part dependent upon the fever being more severe in the former, and still more to the circumstance that the wife and family are anxious to keep the head of the family at home, (for most of the male moribund cases were married men,) and nurse him themselves, which they do until he gets unmanageable, or they themselves fall sick.

XII. I do not intend offering any observations on the causes of this epidemic fever. I shall shew merely, from the meteorological observations for 1839 and 1840, for Aberdeen, as kept by Mr Dickie, surgeon, that two conditions of the atmosphere—temperature and moisture, have nothing to do with it as causes.

1839.					1840.			
	Patients admit.	Mean temp.	Daily range.	Rain in inches.	Patients admit.	Mean temp.	Daily range.	Rain in inches.
Jan.	24	33°.29	6°.34	2.03	45	36°.71	5°.6	2.42
Feb.	17	36 .	7 .92	0.35	43	37 .39	6 .4	1.74
Mar.	14	36 .33	7 .46	3.03	56	40 .39	9 .2	0.61
April	12	42 .63	11 .24	0.75	55	47 .41	13 .1	0.39
May	13	46 .18	12 .02	2.19	50	47 .10	9 .2	2.98

1839.					1840.			
	Patients admit.	Mean temp.	Daily range.	Rain in inches.	Patients admit.	Mean temp.	Daily range.	Rain in inches.
June	9	52°.70	11.37	3.13	52	53°.93	11.2	2.16
July	19	56.62	11.02	3.00	44	55.18	10.7	1.83
Aug.	23	55.	11.20	1.62	40	57.55	11.01	2.1
Sept.	23	52.29	10.14	4.43	32	51.33	9.7	3.5
Oct.	35	46.69	8.50	3.61	41	44.93	9.2	2.58
Nov.	42	42.20	6.75	3.26	41	49.85	8.6	3.26
Dec.	55	38.20	4.85	5.47	35	36.40	6.0	1.76
Total	286	*44.84	*9.07	†32.87	534	*45.72	*9.1	†25.34

Thus it appears, that, if we take the mean temperature of each year, fever was most prevalent in that year when the mean temperature was highest. But the difference in the means of the two years, viz. 44°.84 for 1839, and 45°.72 for 1840, is so trifling, whilst the difference of the numbers admitted—286 for 1839 and ~~565~~ 534 for 1840—is so great, that we cannot consider the two circumstances, temperature and number of admissions, as standing in the relation of cause and effect.

If we look also to the mean of the daily range for each year, we find the difference in the two years to be almost nothing.

If we be at the trouble to compare the summations for each month, the truth of the position maintained will be still more apparent. Thus, it will be seen, that in the month of January 1839, with the average temperature 33°.29, and the daily range 6°.34, the admissions were only 24; whilst in January 1840, with the average 36°.71 and the daily range 5°.6, they were 45. And lest it might be said that, according to this, a high temperature favours the extension of fever, we take July 1839, in which the mean temperature was 56°.62, and the daily range 11°.02, during which, the admissions were 19, and we put in contrast to this the month of December of the same year, when, with a mean temperature of 38°.20, and daily range 4°.85, we have 55 admissions.

Again, in regard to moisture, it will be seen from the tables, that there was a difference in the total fall of rain for the two years of 7.53 inches, and that fever prevailed most in the driest year, or 1840; but if, again, we take the monthly periods, we see the number of admissions the same when the fall of rain is great as when it is small. Thus in March and April 1840, the amount of rain for both is only one inch, whilst the admissions are 111; and in May, when the fall is nearly three inches, they are for that month 50.

The preceding notes were subjected to the perusal of my friend and colleague in the charge of the fevers in this hospital, Dr Dyce, in order that, if his observations and experience had led him to different conclusions in any of the points mooted, these might be

* Mean for the year.

† Sum for the year.

stated, and a fair account or history, as far as these notes extend, might be obtained of the epidemic which has existed for three years past in this locality. He says, "I have to thank you for the opportunity you have given me of now perusing your notes on typhus, as well for the offer of adding any thing I may have to say on the subject. I fear, however, I can add little of importance, beyond a confirmation of the views you have advanced, from not having followed the plan adopted by you in my wards. I can furnish you, therefore, with nothing tabular or in detail.

"Generally your views singularly harmonize with mine, not only as to its chief source, contagion, the prevalence of an eruption, its differing from petechiæ,—in both eruptions often co-existing in the same individual at the same time, and in the subsequent desquamation; but especially in the treatment, and the conclusions you draw with respect to remedies held in repute; but which in this epidemic were, if not injurious, certainly far from being found beneficial.

"There is one point in which I differ with you, relative to the non-appearance of the eruption in the same individual in subsequent attacks, as I am certain I have met with more than one case where a second time a well-marked exantheme has been evident. You will recollect my calling your attention to one case not many months since, in David's Ward,—fortunately the relapses have been few, and the opportunities hence limited for observation on this point, still that it does occur I have not a doubt.

"It may perhaps be irrelevant to the object of your paper to notice a circumstance which was often very striking and marked, and which must have happened in your practice likewise,—I mean the frequent and sudden complete change in the type of the fever, as far as regards the symptoms—traceable, as far as my observation went, to no particular locality or state of the atmosphere. For months together the pulmonic symptoms prevailed almost entirely, then came those marked by gastric and intestinal irritation, and less often, though still continuing for a length of time in succession, those with high cerebral action. The first set, as is too well known, were by far the most intractable and fatal; the last, though sufficiently alarming, and always requiring restraint, more amenable to treatment than either of the others, if anticipated in their approach, or seen soon after their onset. By the way, the medicine I solely relied on in this latter class, you do not include among your list,—I mean tartar emetic. Given as described by Dr Graves, I have found it eminently successful, and have the greatest confidence in it.

"I quite agree with your remarks on bleeding. I found it rarely could be borne, certainly never to any extent; and when deemed necessary from the urgency of the local symptoms, a tedious

convalescence invariably followed. I have hence for a long time trusted entirely to leeches and blisters, and have, in almost every case, been in the practice of limiting the time the leeches were to be permitted to bleed, from so often witnessing the ill effects of such a drain on an already weakened frame. Saline mixtures, infusions, and quinine, have never of late been used. The effects noticed were similar to those you describe. I make one exception to quinine in erysipelas following or appearing in the course of fever. Here, it seldom failed to arrest the disease, moisten the tongue, and improve the condition of the patient generally; but in no other state did I find it admissible."